

3415-01-WO

We claim:

- 5 1. A method for coating a surface of a substrate comprising the steps of:
(a) applying an aqueous discontinuous emulsified material to a surface of a substrate
and (b) drying or allowing to dry the emulsified material as a surface coating on the
substrate.
2. The method of claim 1 comprising the further step of (c) removing the surface
10 coating from the substrate.
3. The method of claim 1 wherein the emulsified material comprises (a) a major
amount of an aqueous phase, (b) a minor amount of a non-aqueous phase and (c) a
minor but effective amount of at least one emulsifier to emulsify the aqueous and non-
aqueous phase resulting in an emulsified material.
- 15 4. The method of claim 3 wherein the emulsified material comprises at least one
component selected from the group consisting of water soluble additive(s), alcohol(s),
organic soluble additive(s), propellant(s), thickener(s), corrosion inhibitor(s) or
mixtures thereof.
5. The method of claim 1 wherein the emulsified material has an aqueous phase
20 content in the range of about 5% to about 99% by weight of the emulsified material.
6. The method of claim 1 wherein the emulsified material has an aqueous phase
content in the range of about 60% to about 85% by weight of the emulsified material.
7. The method of claim 1 wherein the emulsified material has a viscosity in the
range of about 200 cSt to about 5,000,000 cSt.
- 25 8. The method of claim 3 wherein the emulsified material has a non-aqueous
phase selected from the group consisting of organic materials, oils, greases, thickened
oils, thickened grease, gels, thickened solvents, monomers, polymeric materials,
solvents, waxes and mixtures thereof and in the range of about 1% to about 95% by
weight of the emulsified material.
- 30 9. The method of claim 1 wherein the surface coating is applied as a thin film
coating to a substrate and acts as a barrier, a strengthener for the surface, corrosion
protection, evaporation protection, oxidation protection, water protection, adhesion

protection, dissociation protection, degradation protection, wear protection or mixtures thereof.

10. The method of claim 1 wherein the surface coating is selected from the group consisting of a translucent coating, opaque coating, transparent coating, permanent
5 coating, semi permanent coating, temporary coating, removable coating and combinations thereof.

11. The method of claim 1 wherein the substrate for the surface coating to be coated is selected from the group consisting of metal, wood, concrete, stone, asphalt, glass, plastic, composites, fabric, rubber, carbon steel, stainless steel, aluminum and
10 mixtures thereof.

12. The method of claim 1 wherein the surface coating is applied by a method selected from the group consisting of spraying, dipping, spinning, vacuum depositing, reverse rolling, wire-wounding, direct and offset gravure, slot dieing, blading, hot melting, curtaining, knife over rolling, extruding, air knifing, rotary screening,
15 multilayer sliding, painting, brushing, co extrusioning, meniscusing, micro gravure coating, atomizers and combinations thereof.

13. The method of claim 1 wherein the surface coating is applied by a method selected from the group consisting of spraying, painting, rolling, brushing and combinations thereof.

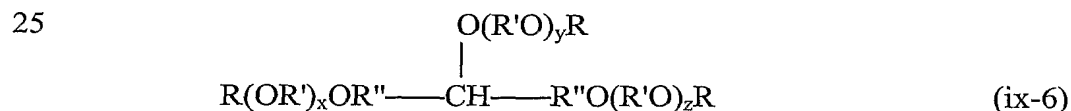
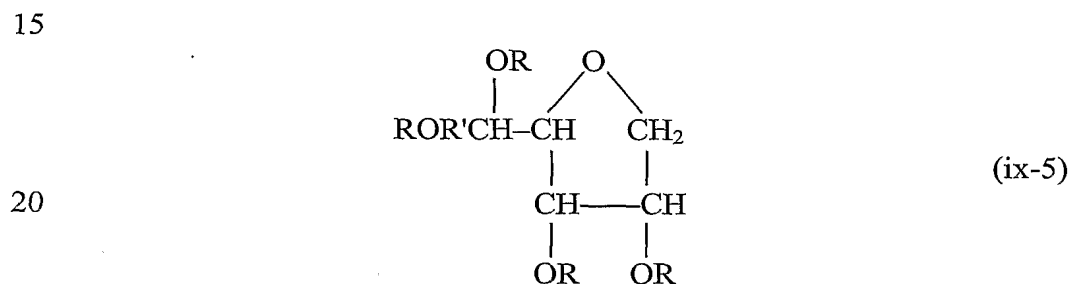
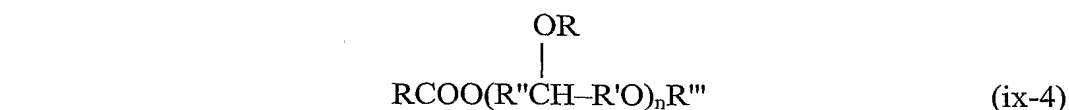
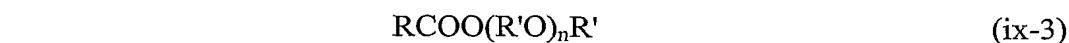
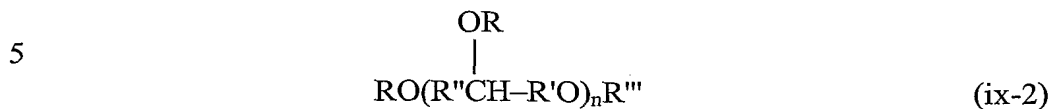
20 14. The method of claim 1 wherein the surface coating is applied by a method selected from the group consisting of an aerosol container and an application of airless atomization; fluid delivering air space system that is pressurized or suction fed; a pressure-feed system with air-assisted airless internal mixing atomization; a compressed air operating at about 35 to about 1050 kPa with the range of about 5 to
25 about 150 psi adjacent to the airless nozzle and impinges upon the thin sheet of fluid as it exits from the spray nozzle orifice in the range of about .0005" to about 0.020" tips; and combinations thereof.

15. The method of claim 1 wherein the coating is dried by a method selected from the group consisting of evaporation, dissipation, curing, heating and combinations
30 thereof.

16. The method of claim 1 wherein the dried surface coating has a thickness in the range of about 0.01 micron to about 50 microns.

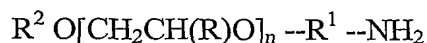
17. The method of claim 3 wherein the emulsified material further comprises thickeners, non-aqueous thickeners, viscosity modifiers, water soluble additives, extreme pressure additives, antiwear additives, metal deactivators, dispersants, antifoams, water soluble organic compounds, biocides, alcohols, corrosion inhibitors, rust inhibitors, antioxidants, detergents, polymers, functionalized polymers, organic soluble additives, alcohols, propellants, an anticorrosion modifier in the non aqueous phase or mixtures thereof.
18. The method of claim 4 wherein the propellant(s) is selected from the group consisting of maybe liquefied, compressed gas and mixtures thereof.
19. The method of claim 1 wherein the emulsified material comprises a water emulsified into a non aqueous phase and wherein the non aqueous phase comprises grease and an anticorrosion modifier.
20. The method of claim 3 wherein the emulsifier is present in the range of about 0.1 to about 20% of the emulsified material and comprises,
- (i) a oil soluble product made by reacting at least one hydrocarbyl-substituted carboxylic acid acylating agent with ammonia or an amine including but not limited to alkanol amine, hydroxy amine, and the like, the hydrocarbyl substituent of said acylating agent having about 50 to about 500 carbon atoms;
 - (ii) any other acylating agent having at least one hydrocarbyl substituent of up to about 40 carbon atoms, and reacting that said acylating agent with ammonia or an amine;
 - (iii) any other ionic or a nonionic compound having a hydrophilic-lipophilic balance (HLB) of about 1 to about 40;
 - (iv) the reaction product of polyacidic polymer with at least one oil soluble product made by reacting at least one hydrocarbyl-substituted carboxylic acid acylating agent with ammonia, an amine, a polyamine, an alkanol amine or hydroxy amines;
 - (v) an amino alkylphenol which is made by reacting an alkylphenol, an aldehyde and an amine resulting in an amino alkylphenol;
 - (vi) a hydrocarbyl substituted carboxylic acid, or a reaction product of the hydrocarbyl substituted carboxylic acid or a reactive equivalent of such acid with an alcohol, the hydrocarbyl substituent of the acid or reactive equivalent thereof containing at least about 30 carbon atoms;

(vii) at least one compound represented by one or more of the formulae:



wherein each R is independently hydrogen or a hydrocarbyl group of up to about 60 carbon atoms; each R' and R'' is independently an alkylene group of 1 to about 20 carbon atoms; each R''' is independently hydrogen, or an acyl or hydrocarbyl group of up to about 30 carbon atoms; n is a number in the range of zero to about 50; and x, y and z are independently numbers in the range of zero to about 50 with the total for x, y and z being at least 1;

(viii) an etheramine used to make the emulsified material can be represented by the formula



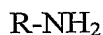
wherein each n is a number from 0 to 50; each R is selected from the group consisting of hydrogen, hydrocarbyl groups of 1 to 16 carbon atoms, and mixtures thereof; each R^{sup.1} is selected from the group consisting of a hydrocarbylene group containing 2 to 18 carbon atoms and a group represented by the formula



wherein both R⁶ and R⁷ are hydrocarbylene groups of 3 to 10 carbon atoms and p is a number from 1 to 4; and each R² is a hydrocarbyl group having a valence of y where y is a number from 1 to 3, and containing 1 to 50 carbon atoms when y is 1 and 1 to 18 carbon atoms when y is 2 or 3; provided that when n is zero, y is 1;

- 10 (ix) a phospholipid, any lipid containing a phosphoric acid, such as lecithin or cephalin;

- (x) An amine represented by the formula:



where R = a poly(isobutenyl) group of molecular weight between 350 and 3000; or

- 15 (xii) the combination of any other above listed emulsifiers.